



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,777	06/01/2001	Robert G. Hockaday	ENERGY RD	1298
	7590	03/25/2004	EXAMINER	
James C. Wray Suite 300 1493 Chain Bridge Road McLean, VA 22101			WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/870,777

Applicant(s)

HOCKADAY ET AL.

Examiner

Wills M Monique

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 5-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

*Response to Amendment*

This Office Action is responsive to the Amendment filed December 12, 2003.

The following rejections have been withdrawn in light of Applicant's Amendments:

- Claims 1-3, 7,8,10,13,15 & 25-26 rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al., U.S. Pub. No. 2003/0134182.
- Claims 11,12, 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al., U.S. Patent 5,603,656, in view of Levy, U.S. Patent 4,191,806.
- Claims 21-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Baer et al., U.S. Patent 5,603,656 in view of Markin et al., U.S. Patent 4,476,200.

However, upon further consideration, the allowable subject matter indicated in the previous office action has been withdrawn, and new grounds of rejection are made as follows:

- Claims 1-27 are rejected under 35 U.S.C. 112, first paragraph
- Claim 5 is objected to
- Claims 1-3, 6-20, & 23-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al., U.S. Patent 6,660,425
- Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al., U.S. Patent 6,660,425, as applied to claim 1 above.

Art Unit: 1746

- Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al., U.S. Patent 6,660,425 as applied to claim 1 above, and further in view of Lewin et al., U.S. Patent 5,916,704.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-27 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a diffusion layer, does not reasonably provide enablement for a dispersive layer. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Specifically, claim 1 requires a dispersive layer, which is not described in the specification.

### *Claim Objections*

Claim 5 is objected to because of the following informalities: the claim erroneously depends on claim 4, which has been cancelled. Appropriate correction is required.

### *Claim Interpretation*

The specification has support for a "diffusion layer", but not a "dispersive layer". Therefore, the "dispersive layer" of claim 1, will be interpreted as a "diffusion layer".

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 6-20, & 23-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al., U.S. Patent 6,660,425.

Jones et al. teach a catalyst to recombine oxygen and hydrogen gas emitted from the battery and thereby, improve the performance and life of the electrochemical cell (abstract). With respect to claims 1 & 27, Jones et al. teach a membrane vent assembly comprising: a battery casing (62); a gas selective permeable membrane (col. 4, lines 41-60), that is a porous substrate adjacent the perforation (68) in the battery case (Fig. 8 & col. 9, lines 1-10); a catalyst layer 26 (col. 4, lines 15-20); a

Art Unit: 1746

diffusion layer (dispersive layer) (28); wherein the membrane assembly combines oxygen gas and hydrogen gas to make water (col. 5, lines 20-25). In re claims 2 & 3, the membrane passes hydrogen to the catalyst (col. 5, lines 45-49). With respect to claim 5, the catalyst surface comprises platinum and palladium (col. 4, lines 15-20). With respect to claims 7-14, 23 & 24, the claims are product-by-process claims, that require making the membrane by coating and plugging the pores of a substrate. Even though product - by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product - by - process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 227 USPQ. In the instant case, even though the membrane was made by different processes, claims 7-14, 23 & 24 are unpatentable because it appears that the final product made by Jones is the same as the subject invention, unless Applicant's can show that the process materially changes the final product. With respect to claims 15 & 16, the membrane (30) has a gas permeable coating of polytetrafluorethylene (col. 8, lines 25-30 & Figures 6-7). With respect to claims 17 & 18, the membrane further comprises an electrolyte in contact with the selective permeable film (col. 6, lines 43-51). With respect to claim 20, the membrane comprises gas diffusion mat or membrane filter (58) placed on the membrane (col. 8, lines 25-31). With respect to claims 25 & 26, the membrane assembly further comprises a pressure

Art Unit: 1746

relief valve (12). See column 3, lines 54-56. The instant claims are anticipated by the prior art set forth. The limitation in claims 2 & 3, with respect to the membrane passing hydrogen gas preferentially over other gasses of water, carbon dioxide and oxygen, is considered to be an inherent property of the membrane as set forth in the prior art, because Jones employs a membrane that allows hydrogen and oxygen to permeate the membrane (col. 5, lines 15-20). The membrane will inherently, preferentially, pass hydrogen over other gases, because the atomic size of hydrogen is much smaller than the remaining gasses. The limitation in claims 17 & 18, with respect to the membrane further comprising an electrolyte in contact with the selective permeable film, is considered to be an inherent property of the membrane as set forth in the prior art, because Jones teaches that the catalytic assembly (10), which includes the membrane, may be contained, or "dropped in", the battery cell (col. 6, lines 43-51). This embodiment will inherently provide contact between outer membrane (30) and the liquid electrolyte of the VRLA. The limitation in claim 19, with respect to the membrane further comprising a hydrogen selective coating over a non-selective gas coating, is considered to be an inherent structure of the membrane assembly as set forth in the prior art, because catalyst coating contains palladium and platinum, which are hydrogen selective precious metal catalyst. With respect to the non-selective coating, the pore size of the membrane may be adjusted so that only gas or vapor can pass through the membrane (col. 4, lines 55-60), thus providing a non-selective membrane with respect to gas, but selective with respect to liquid.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al., U.S. Patent 6,660,425, as applied to claim 1 above.

Jones teaches a catalytic membrane vent as described hereinabove, including a catalyst capable of combining oxygen and hydrogen gases emitted from the battery.

The reference is silent to a catalytic surface on both sides of the membrane for acting as a gas recombination mechanism.

However, it would have been obvious to one having ordinary skill in the art at the time the instant invention was made to employ an additional catalyst layer on the opposite side of the membrane, in order to further aid in combining oxygen and hydrogen gases emitted from the battery thereby, improving the life and performance of the battery.



*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al., U.S. Patent 6,660,425 as applied to claim 1 above, and further in view of Lewin et al., U.S. Patent 5,916,704.

Jones teaches a catalytic membrane vent as described hereinabove.

The reference is silent to the membrane comprising a heat seal around the perforation in the battery case.

Lewin teaches that it is conventional to provide membrane vent assemblies with heat seals around the perforation in the battery case (col. 2, lines 19-25), in order to prevent ingress of moisture and dirt into the battery (col. 3, lines 40-45).

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made, because even though Jones does not teach a membrane comprising a heat seal around the perforation in the battery case, Lewin teaches that such a structure prevents ingress of moisture and dirt into the battery.

### *Response to Arguments*

Applicant's arguments with respect to the rejections of the instant claims have been fully considered and are persuasive. The Applicant incorporated the allowable subject matter of claim 4, into the base claim to overcome the rejections of record. However, upon further consideration, allowability of the claims are withdrawn in view of the rejections cited above.

### *Conclusions*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

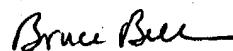
Art Unit: 1746

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mw

03/15/04

  
BRUCE F. BELL  
PRIMARY EXAMINER  
GROUP 1746

Application/Control Number: 09/870,777

Art Unit: 1746

Page 11